

Appl. No. 09/888,400
Amendment dated: August 27, 2003
Reply to OA of: March 28, 2003

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claims 1-4(canceled).

5(previously presented). A wire for arc welding manufactured by firstly drawing a wire material, heat treating the drawn wire material for work hardening it, secondary drawing the heat treated wire material, heat treating the secondary drawn wire material for removing internal residual stress of it, and finally drawing the heat treated wire material, wherein the final drawing step is carried successively out by a first die having a diameter reducing contact part of a smaller contact angle and a shorter bearing part for actually reducing a diameter of the wire to be worked, and a second die having a longer diameter correcting contact part than that of the first die for actually correcting the diameter of the wire, the second die being disposed in series with the first die, whereby a hardness difference between a central portion and an outer surface of the wire is less than 18 and a hardness difference between portions at intervals of 200mm in the longitudinal direction is less than 15, when the hardness of respective wire portions is measured by Vickers Hardness tester.

6(previously presented). The wire for arc welding of the claim 5, wherein the differences of hardness values are adjusted to the values when wire contact area rate defined the following formula is limited within a range of 3 to 3.5:

wire contact area rate = a diameter reducing contact rate + a diameter correcting contact rate

diameter reducing contact rate = area of part for reducing a diameter of the wire/cross section area of the wire incoming into the first die

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diameter correcting contact rate = area of the part for correcting a diameter of the wire/cross section area of the wire drawn from the second die.

7(previously presented). A method for manufacturing a wire for arc welding, which comprises steps of firstly drawing a wire material, heat treating the drawn wire material for work hardening it, secondary drawing the heat treated wire material, heat treating the secondary drawn wire material for removing internal residual stress of it, and finally drawing the heat treated wire material, wherein the final drawing step includes steps of reducing a hardness difference in a radial direction of the wire using a first die having an area reduction contact part of a smaller contact angle and a shorter bearing part, and reducing a hardness difference in a longitudinal direction of the wire using a second die having a longer diameter correcting contact part than that of the first die and being disposed in series with the first die.

8(new). A wire for arc welding manufactured by firstly drawing a wire material, heat treating the drawn wire material for work hardening it, secondary drawing the heat treated wire material, heat treating the secondary drawn wire material for removing internal residual stress of it, and finally drawing the heat treated wire material, wherein the final drawing step is carried successively out by a first die having a diameter reducing contact part of a smaller contact angle and a shorter bearing part for actually reducing a diameter of the wire to be worked, and a second die having a longer diameter correcting contact part than that of the first die for actually correcting the diameter of the wire, the second die being disposed in series with the first die, whereby a hardness difference between a central portion and an outer surface of the wire is less than 18 and a hardness difference between portions at intervals of 200mm in the longitudinal direction is less than 15, when the hardness of respective wire portions is measured by Vickers Hardness tester, in addition the two differences of hardness values are adjusted to the values when wire contact area rate defined the following formula is limited within a range of 3 to 3.5,

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wire contact area rate = a diameter reducing contact rate + a diameter correcting contact rate.